CLAIMS

1. A method for transmitting data over a channel having a variable transmission rate, comprising:

determining the rate of transmission of the data over the channel;

receiving a datagram for transmission over the channel at the determined rate of transmission;

dividing the datagram into fragments of a size no greater than a size limit that is set for the datagram responsive to the determined rate of transmission; and

transmitting the fragments over the channel.

2. A method according to claim 1, wherein the rate of transmission is in a range between about 100 kilobits per second (kbps) and about 2300 kbps.

3. A method according to claim 1, wherein the channel comprises a Digital Subscriber Line (DSL) network access channel.

4. A method according to claim 1, wherein the datagram comprises a data packet.

5. A method according to claim 1, wherein dividing the datagram comprises setting the size limit such that a length of time required to transmit each of the fragments is no greater than a predetermined maximum time.

6. A method according to claim 5, wherein receiving the datagram comprises receiving a datagram associated with a low-priority service, and wherein the predetermined maximum time comprises a maximum delay applicable to other datagrams associated with a high-priority service, which are also transmitted over the channel.

7. A method according to claim 6, wherein transmitting the fragments comprises interrupting transmission of the fragments of the datagram associated with the

low-priority service in order to transmit at least one of the other datagrams associated with the high-priority service with a delay no greater than the maximum delay.

8.   A method according to claim 1, wherein dividing the datagram into fragments comprises increasing the size limit as the rate of transmission increases.

9.   A method according to claim 8, wherein dividing the datagram comprises dividing the datagram into fragments having a fixed overhead size and a variable payload size, such that a ratio of the payload size to the overhead size increases as the rate of transmission increases.

10.   A method according to claim 8, wherein dividing the datagram into fragments comprises setting the size limit responsive to fragmentation control parameters programmed by a human operator, and wherein increasing the size limit comprises increasing the limit automatically as the rate of transmission increases, substantially without alteration of the parameters.

11.   A method according to claim 1, and comprising receiving the fragments over the channel at a receiver, and processing the fragments responsive to the variable rate of transmission so as to reassemble the datagram.

12.   Apparatus for transmitting data over a channel having a variable transmission rate, comprising a transmitter, adapted to set the rate of transmission of the data over the channel and to set a fragment size limit responsive to the determined rate of transmission and, upon receiving a datagram for transmission over the channel, to divide the datagram into fragments of a size no greater than the fragment size limit and to transmit the fragments over the channel.

13. Apparatus according to claim 12, wherein the rate of transmission is in a range between about 100 kilobits per second (kbps) and about 2300 kbps.

14. Apparatus according to claim 12, wherein the channel comprises a Digital Subscriber Line (DSL) network access channel.

15. Apparatus according to claim 12, wherein the datagram comprises a data packet.

16. Apparatus according to claim 12, wherein the transmitter is adapted to set the size limit such that a length of time required to transmit each of the fragments is no greater than a predetermined maximum time.

17. Apparatus according to claim 16, wherein the datagram is associated with a low-priority service, and wherein the predetermined maximum time comprises a maximum delay applicable to other datagrams associated with a high-priority service, which are also transmitted over the channel.

18. Apparatus according to claim 17, wherein the transmitter is adapted to interrupt transmission of the fragments of the datagram associated with the low-priority service in order to transmit at least one of the other datagrams associated with the high-priority service with a delay no greater than the maximum delay.

19. Apparatus according to claim 12, wherein the transmitter is adapted to increase the size limit as the rate of transmission increases.

20. Apparatus according to claim 19, wherein the fragments have a fixed overhead size and a variable payload size, such that a ratio of the payload size to the overhead size increases as the rate of transmission increases.

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21. Apparatus according to claim 19, wherein the transmitter is adapted to set the size limit responsive to fragmentation control parameters programmed by a human operator, and to increase the size limit automatically as the rate of transmission increases, substantially without alteration of the parameters by the operator.

22. Apparatus according to claim 11, and comprising a receiver, coupled to receive the fragments over the channel and to process the fragments responsive to the variable rate of transmission so as to reassemble the datagram.